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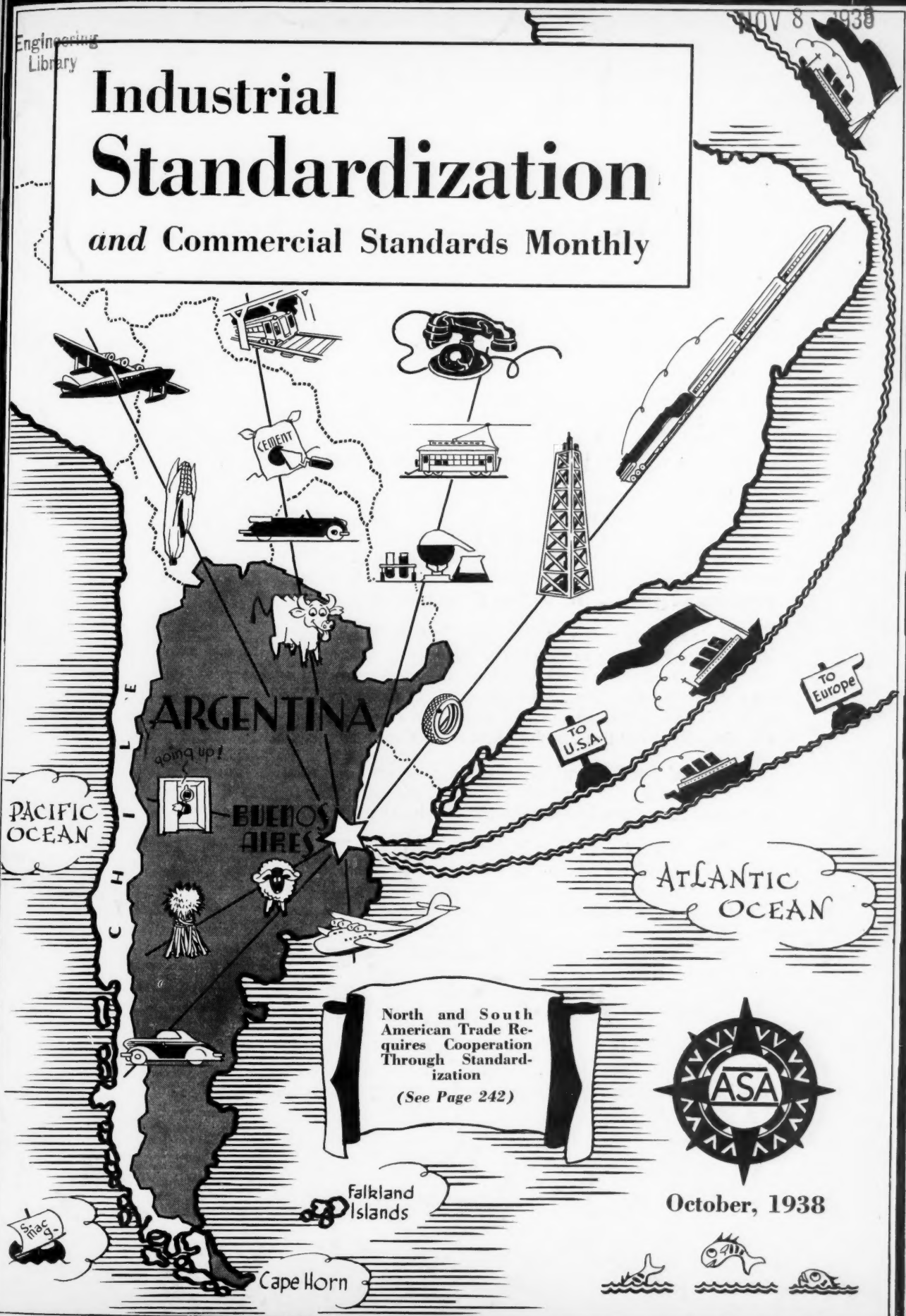
Industrial Standardization

and Commercial Standards Monthly



North and South American Trade Requires Cooperation Through Standardization

(See Page 242)

October, 1938

Twenty Years of Growth

ACTION taken by the Board of Directors this month, on a request from the Chamber of Commerce at Buenos Aires, to station a standards engineer in Argentina, marks a new advance in utilization of the American Standards Association by industry.

The standards movement began twenty years ago this month when a group of fifteen representatives from the five principal engineering societies met to discuss need of a central clearinghouse for their standardization programs. Out of this meeting grew the American Engineering Standards Committee, with purpose to coordinate the activities of the five societies.

Before twelve months had passed the new Committee was asked by industrial and governmental groups to add to its activities development of a series of national industrial safety codes. The new assignment nearly swamped the organization. Its constitution and by-laws had to be revised to allow for broader participation on the part of trade associations and government groups. Its staff of three was overburdened.

This safety work was the first of many important industrial problems brought by industry to the AESC for solution through the development of adequate standards. By 1928 the scope of the work had increased to such an extent that the Committee reorganized again and became in name what it had for some time been in fact — the American Standards Association, clearinghouse for the development of national standards.

One of the first actions of the reorganized Association was to join the International Standards Association, opening the way for the direct participation of American business in international work of interest to it.

Today the Association has a membership of 71 national organizations and approximately 2,000 companies. Its monthly news magazine goes to 7,000 engineers and executives in this country and abroad. Its library provides information that sometimes can be obtained nowhere else. Its 2,987 committee members represent more than 600 cooperating organizations, and are actively engaged in a program which has recently been extended to include standardization problems in the building and plumbing field, the development of basic standards for goods sold at retail, work for occupational disease prevention, the development of traffic standards.

During these 20 years since the organization meeting of representatives of the five societies, the idea of a national clearinghouse for standards has become rooted in the minds and planning of American industry.

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C. R. Harte, Connecticut Company, New Haven, Conn.—Electrical

L. F. Adams, General Electric Company, Schenectady, N. Y.—Safety

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Am. Home Economics Assn.
Am. Institute of Bolt, Nut & Rivet Mfrs.
Am. Institute of Elec. Engineers
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Am. Soc. of Civil Engineers
Am. Soc. of Mechanical Engineers
Am. Soc. for Testing Materials
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Electric Light and Power Group:
  Assn. of Edison Illuminating Companies
  Edison Electric Institute
Federal Housing Administration
Fire Protection Group:
  Associated Factory Mutual Fire Insurance Companies
  Nat. Bd. of Fire Underwriters
  Nat. Fire Protection Assn.
  Underwriters' Laboratories, Inc.
Institute of Radio Engineers
Mfrs. Standardization Soc. of the Valve and Fittings Industry
Nat. Assn. of Motor Bus Operators
Nat. Assn. of Mutual Casualty Companies
Nat. Conservation Bureau
Nat. Electrical Mfrs. Assn.
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Industrial
Standardization

Combined with Commercial Standards Monthly

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with the cooperation of the National Bureau of Standards

RUTH E. MASON, *Editor*

This Issue

Our Front Cover: By Stan McGovern. Argentina offers a market for American manufactured products, and many U. S. companies have branch factories and assembly plants there.

Twenty Years of Standardization. By P. G. Agnew 229

How the AESC Was Organized. By Comfort A. Adams 237

The American Standards Association and the National Bureau of Standards. By Lyman J. Briggs 238

What About the Future? By Dana D. Barnum 240

New ASA Committee to Develop Standards for Photography 241

American Standards Representative To Be Named in Argentina 243

Use of American Standards in Argentina Vital to All American Manufacturers. By J. Seward McCain 243

Industry Need Standards Engineer to Promote Argentine Use of Products. By Eugene P. Thomas 244

New Copper Cable Standard Adds to Series on Wires and Cables. By J. J. Morrison 247

Recent Meetings Show Progress in International Standards Work 250

American Medical Association Accepts Standards for Spectroscope Analysis 253

A.S.T.M. Paper Describes Problems in Developing Wool Standards 254

Revised Recommendation Lists Surgical Dressings .. 241

New Canadian Standards Available from ASA 246

Outdoor Advertising Association Names Stewart on ASA Council 246

Manufacturers Willing to Certify That Commodities Meet Commercial Standards 249

A.S.M.E. Elects New Officers 249

Public Schools Add Course in Consumer Education . 249

New British Standards Published and Available ... 255

Commercial Standard for Walnut Veneers Gives Specifications and Grading Rules 255

ASA Plans Annual Meeting 255

ASA

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

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October, 1938 **Vol. 9, No. 10**

Twenty Years of Standardization

by

P. G. Agnew

Secretary, American Standards Association

THE American Standards Association was started in 1918 because differences of opinion among the various technical organizations showed the need for a coordinating agency for their standardization activities. At that time there were hundreds of organizations—engineering societies, trade associations, and government departments—independently developing and issuing standards with little or no systematic cooperation. Conflict and overlapping were unavoidable.

The World War, which demanded unprecedented coordinated efforts from industry, gave incisive proof of the need of effective national standards. Large losses from lack of interchangeability were frequent. Two large American companies, for instance, each lost $10,000,000 on their early British and Russian contracts. Rejection of materials, due to lack of an adequate gaging system to control the accuracy of the product, was one of the most important factors in these huge losses.

The need for a national agency had early become recognized by many of the technicians working on standardization problems in special fields. As early as 1911 a committee of the American Society of Mechanical Engineers, headed by Henry Hess, had proposed that a national agency be set up for the "registration" of the standards of the technical and industrial groups of the country.

In 1916 the American Institute of Electrical Engineers took the initial step toward the organization of a working national clearing house for standards by inviting the American Society of Mechanical Engineers, the American Society of Civil Engineers, the American Society of Mining and Metallurgical Engineers, and the American Society for Testing Materials to join with it in setting up such a body.

Nearly two years, sometimes referred to as part of "the period of the anguish of internal adjustment," were spent in endless discussion and in formulating innumerable drafts of constitutions and methods of procedure before the committee's final recommendations for the organization of what was to be known as the American Engineering Standards Committee were approved by the five societies. The same 15 men who represented these societies on the committee were appointed

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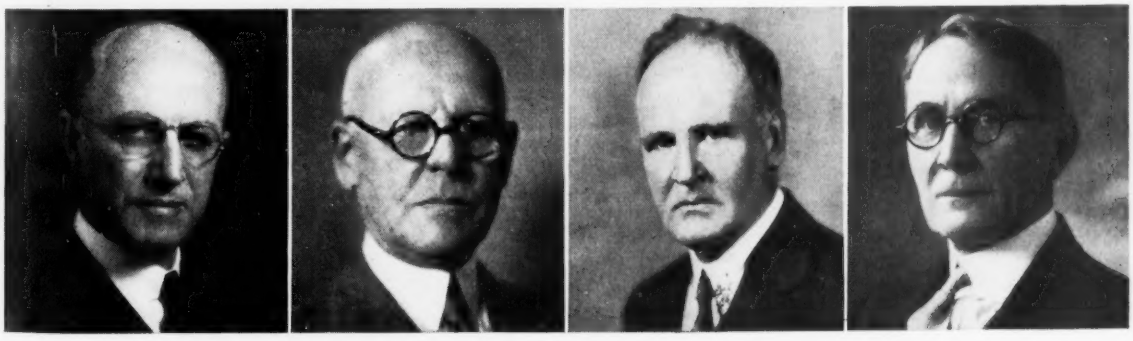
Chairmen of the American Engineering Standards Committee

Comfort Adams	*A. A. Stevenson*	*A. W. Whitney*	*C. E. Skinner*
1918 - 1919	*1920 - 1922*	*1922 - 1924*	*1925 - 1927*



to represent them at the organization meeting of the new AESC, October 19, 1918. At this meeting, Professor Comfort A. Adams was elected as the Committee's first chairman, as he had been of the organizing committee.

LePage, Acting Secretary

The American Engineering Standards Committee started with an ambitious program but with little else. Each of the five societies had subscribed $1,500 a year to get the organization started. During the early period, the American Society of Mechanical Engineers, whose secretary, the late Calvin W. Rice, had been one of the leaders in starting the Committee, provided the services of a member of its staff, C. B. LePage, as acting secretary. Mr. LePage served until December, 1919, when I started as full-time secretary. The first year the staff consisted of two stenographers and myself.

The Committee was originally set up with the idea that the administrative control of the organization should rest in the hands of the five engineering societies, but the first fundamentally important job that came along—the development of an extensive program of national industrial safety codes—brought a challenge to this idea.

Industry as represented in the trade associations flatly refused to cooperate with an organization which it considered entirely too undemocratic and narrow in its set-up to be entrusted with so important a program. Industrial executives insisted that, since the codes were to serve as regulations legally enforced by governmental agencies and under which industry must live, both governmental agencies and industry should be privileged to share in the administrative control on the same basis as the engineering societies. Practically the entire first year was spent in a thorough re-organization to meet these criticisms, and late in 1919 trade associations and governmental bodies accepted membership on the governing body of the AESC.

In setting up the national organization the main purpose had been to provide an effective channel of cooperation between the many national groups engaged in standardization activities, without hampering their own valuable undertakings. There was a fundamental difference of opinion as to whether or not this should take the form of a strong central organization.

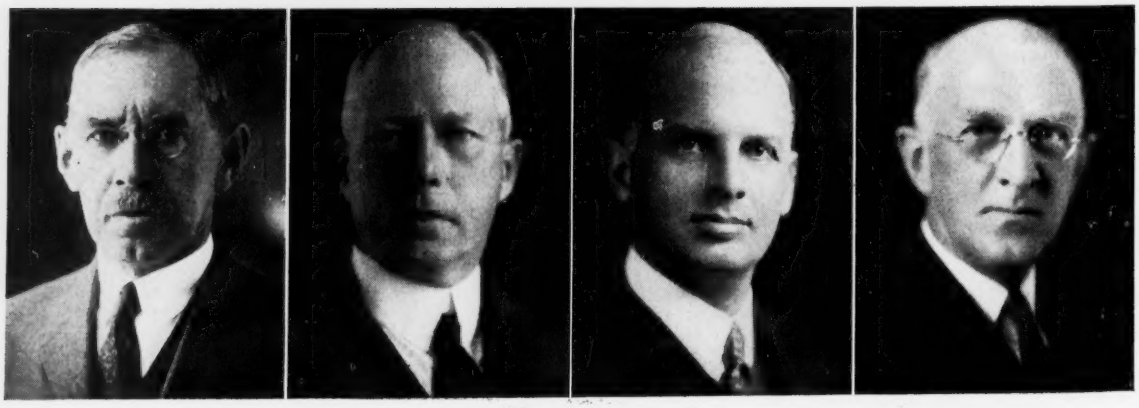
Soon after taking up the work as secretary of the AESC, I discovered, not without considerable foreboding, that the fundamental issue had not really been solved but had been merely obscured by drafting the Constitution and Rules of Procedure in such general terms that each party read into these documents its own interpretation. I have frequently referred to this as the controversy between the "states' righters" and the "federalists."

"States' Righters" vs. "Federalists"

The "states' righters" wanted the new organization held to a purely formal, if not nominal, relationship to the actual work of the development of standards to make sure it would not interfere in any way with their work. The "federalists," on the other hand, wanted a strong national body, and felt that this could be accomplished without serious interference with the work of the cooperating bodies. The "federalists" held that if a strong national organization were not developed, the approval of standards would degenerate into a rubber-stamp procedure—as though an organization handed a completed stand-

Presidents of the American Standards Association

W. J. Serrill	*Bancroft Gherardi*	*Howard Coonley*	*Dana D. Barnum*
1928 - 1930	*1931 - 1932*	*1933 - 1935*	*1936 -*



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Solution of Controversies ASA's Biggest Achievement

"In looking back over these 20 years—from 1918 to 1938—it seems to me that one of the outstanding accomplishments of the American Standards Association has been the solution of the many controversies encountered in the work—controversies which have been sometimes technical, sometimes jurisdictional.

"I say 'solution' advisedly, because a real solution, based upon an understanding of the basic facts, rather than a mere compromise, has generally been found. In this, the genius of the organization, in so far as it may have genius, principally lies.

"In the early days someone objected to the initiation of a new project on the ground that it would involve the ASA in a 'controversy.' I said, 'We cannot possibly escape controversy. Controversy is where we live. It is only in the solution of controversies that the work of the organization has been most valuable. If everyone held the same opinion on every subject presented, we would have no work to do, and there would be no need for this organization.'

"Thus, the real story of the Association's first 20 years lies in the story of its controversies. Time has now so healed the wounds of the earlier emotional conflicts that there can surely be no harm in mentioning some of them here and there in passing."—*P. G. Agnew.*

ard through a window, had it rubber-stamped with ASA approval, and passed it along as an American Standard. This, they warned, would eventually result in the elimination of the "rubber stamp."

Solution of this difficulty was to constitute the most important problem before the AESC for a number of years—in fact, until the reorganization of the AESC into the American Standards Association in 1928. Even yet it bobs up in attenuated form on occasion, and will probably continue to do so for years to come.

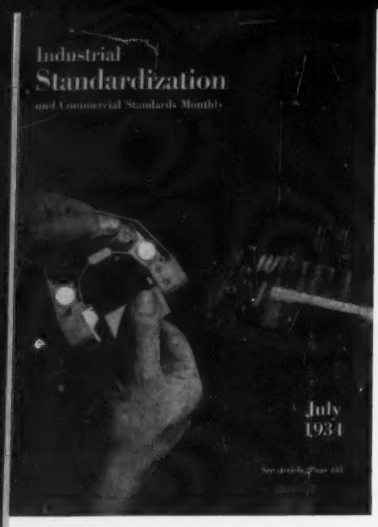
A controversy over the make-up of sectional committees illustrates the differences of opinion at that time as to the method of functioning of the AESC. The original Rules of Procedure made it possible for a sponsor organization, when submitting a standard to the AESC for approval, to submit also a list of members of that committee, indicating opposite the name of each individual to what society that individual belonged. These societies, although they had had no voice in naming the committee members, were then considered to have been represented in developing the standard. This controversy centered around the question whether representatives on committees should or should not be "representatives of their own choosing." The question came up in a meeting of the AESC in July, 1920. There was a sharp division of opinion in the Committee, but the matter was finally settled when Dr. Rosa of the National Bureau of Standards spoke strongly for "representatives of their own choosing" and turned the tide of opinion in favor of this change. No one now would think of bringing up such a question.

Another example is the fact that the original Rules of Procedure provided that no American Standard could be revised more often than once in three years. One of the strong points of the present policy of the Association is that no standard is considered static, but prompt changes to meet changing conditions are always encouraged.

The "period of the anguish of internal adjustment" lasted through 1921, during which time the technical work was well launched. and these problems of policy were clarified.

By 1928 the expansion of the work had led to "growing pains" which necessitated a fundamental re-organization. This also proved to be a long and, at times, a painful undertaking. It resulted in the change from a committee organization, which had been completely outgrown, to a full-fledged association, including changing to the present name. One can compare the history of the ASA to that of our National Government. The AESC corresponds to the government under the articles of confederation; the American Standards Association as reorganized in 1928 corresponds to our national government under its present constitution.

Opinion on the reorganization was divided, and



The mechanical industry has brought many important standardization problems to the ASA. Among these are cylindrical fits, surface quality, and gaging practice which directly affect large volume production of high-quality products.

again the controversy between the "states' rights-ers" and the "federalists" arose.

The proposed change in name came to symbolize the various controversies. A striking incident at this time seems to me to well illustrate the spirit of ASA methods. The late J. A. Capp, a representative of the American Society for Testing Materials, who had been a member of the original organizing committee, warmly announced in the early stages of reorganization that the name "American Standards Association" would be adopted only over his dead body. But Mr. Capp was a man who was not afraid of reversing his stand and he himself seconded the final resolution recommending the adoption of the complete reorganization plan, including the new name.

Several successive reports by the committee working on the reorganization plans were flatly rejected by the Main Committee, and the reorganization might not have been completed had not S. L. Nicholson of the National Electrical Manufacturers Association suggested that the organizations having an interest in the proposal be invited to name representatives on the reorganization committee. Seventeen took advantage of this opportunity, and for several months their representatives met every week to thresh out differences of opinion. Admiral Rock of the U. S. Navy, for instance, made the trip from Washington to New York week after week to attend these meetings.

The final plan of reorganization, including the setting up of a Board of Directors, the change of name, liberalization of methods, including "antonomous" technical committees and "proprietary sponsorships," won unanimous approval in all stages. The enlarged Rules Committee, the AESC itself, and each of the 36 national organizations constituting the Member-Bodies, accepted unanimously the entire reorganization as proposed. It became effective in 1928.

Safety Codes Bring Reorganization

The program for the development of national safety codes—the first important job to come before the American Engineering Standards Committee—was begun in 1920, almost before the AESC organization had been completed.

About 1912 public agitation had made workmen's compensation a national policy, and industrial accidents a matter of dollars and cents. Then for the first time industrial safety became recognized as a problem for industrial management, and states began enforcing safety regulations.

There being no clearing house for the regulations of the different states, conflict occurred. One type of electric motor, in order to be legally safe in the State of Pennsylvania, had to be legally unsafe in the State of Wisconsin, and vice versa. As these problems grew in importance, it became increasingly evident that some machinery would have to be set up to bring together manufacturers, employers, employees, state regulatory bodies, insurance companies, and safety organizations to work out standards on which the state regulations could be based.

In 1919 a conference called at the National Bureau of Standards came to the conclusion that there was no organization except the American Engineering Standards Committee which could logically undertake so comprehensive a program.

But, as I have said before, industry refused to cooperate until the AESC had been reorganized, and it was not until after a second meeting at the National Bureau of Standards, where the AESC

First Members of AESC

Fifteen representatives of five technical societies organized the American Engineering Standards Committee, and started the Committee's work. These men, the original members of the AESC when it was formally organized in 1918, were:

American Society of Civil Engineers
- John H. Gregory
- Martin Schreiber
- Harry N. Latey

American Institute of Mining and Metallurgical Engineers
- George C. Stone
- Joseph W. Richards
- Arthur L. Walker

American Society of Mechanical Engineers
- Henry Hess
- Henry H. Vaughan
- Wm. F. Kiesel, Jr.

American Institute of Electrical Engineers
- Comfort A. Adams
- H. M. Hobart
- N. A. Carle

American Society for Testing Materials
- J. A. Capp
- A. W. Gibbs
- A. A. Stevenson

The safety codes approved by the American Standards Association touch closely the welfare of workers in all lines of employment. Prevention of accidents is the aim of this work.

Photos on pages 222-235 are used by courtesy of Pratt & Whitney Co.; American Telephone & Telegraph Co.; Paramount Productions, Inc.; Times-Wide World, respectively.

reported its reorganization plan, that the safety code program was actually agreed upon. The Safety Code Correlating Committee, which paved the way for the present ASA system of general industry committees, was organized early the following year to supervise and coordinate the work. This work has resulted in a consistent set of some 50 national safety codes, which have now become the most important sources for state safety regulations. They are used by insurance companies, both stock and mutuals, in advice to their assured, and by manufacturers and employees.

Recently the Association has gone a step farther and extended its work to the field of industrial disease prevention.

Safety Program Hits Snags

Although the safety code program has been remarkably effective, it has had its difficulties. For example, the Safety Code for Abrasive Wheels was held up for almost a year because of a controversy over a patent. And yet this code is now one of the most universally used of all the American Standards and represents one of the most thoroughgoing jobs ever done by the ASA. All parties concerned were represented on the committee, an expert research job was carried out, and the code has now been given 100 per cent acceptance by regulatory authorities, manufacturers, and users.

Very early in the development of the safety code work, the question of labor representation threatened to wreck the entire program. An anti-labor man bitterly opposed the policy of permitting a representative of a labor union to sit on his committee. Finally, however, an arrangement was made whereby the U. S. Secretary of Labor was to be requested in each case to provide employee representation on the technical committees working on standards. The Secretary then goes to the union or unions in that field, asks for nominations for committee representatives, and appoints these nominees as the official representatives of the U. S. Department of Labor. The Association recently had occasion to review this entire question, and re-affirmed this arrangement for employee representation. The preferred method of representation is still through the U. S. Department of Labor, but direct union representation is also permitted.

The mining work, started in 1920, represents the one program of the Association which has decreased rather than increased in importance. Prior to organization of the Mining Standardization Correlating Committee, a group of "first edition" mining standards had been submitted to the Association. Before taking any action on these standards, the ASA called a conference bringing together the various organizations in the mining field. At first, strong inter-organization jealousies made the prospect for constructive action seem hopeless. Opposition to any cooperative action was freely expressed. During the first meeting, however, frank discussion of the problems took place and by the end of the day it was unanimously agreed that the mining program should go forward. A motion to organize the Correlating Committee was made by one of the men who had at first shown the most determined opposition to cooperative work.

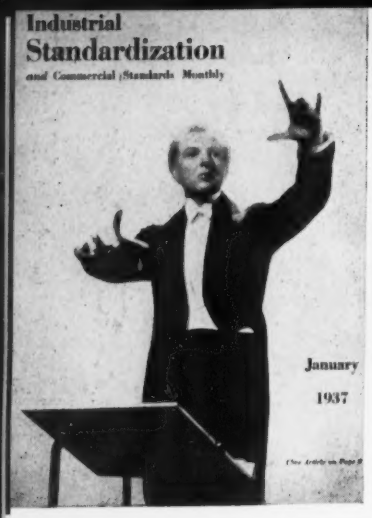
One important mining standard, on rock dusting of coal mines, has been extensively adopted and has saved scores if not hundreds of lives. In one large mine in the Pittsburgh district a few years ago, for instance, an explosion in a section of the mine not yet dusted cost the lives of many miners working there. The rock dusted section stopped the spread of the explosion, however, and the men working in that section were unharmed.

Standard gages for coal mine tracks have been of great economic importance to the mining industry.

Spend $100,000

Another set of standards, recently developed, on classification of coals, represents the culmination of 10 years' work by a broadly representative committee in a field that has been studied for over 75 years. The work has been the basis for some 50 research papers and it has been estimated that the Department of Mines in Canada, the U. S. Geological Survey, and the U. S. Bureau of Mines and others cooperating spent over $100,000 on field and laboratory studies of problems directly or indirectly connected with the classification of coals. Experienced mining engineers have said that the results obtained from each of these jobs more than justify all the work done by the ASA on the entire mining standardization program.

Comparatively little headway has been made recently, however, in the development of mining standards. The most important reason for this is to



Standard definitions for acoustics and standards for measurement of sound are accomplishments of the ASA's program with wide application in industry and science. Adoption of musical terms and standard pitch has benefitted musicians and the music industries.

be found in the present state of the mining industry.

From the very beginning the electrical work has bulked large in the program of the Association, growing steadily since the organization of the AESC until now there are some 60 electrical standards approved by the ASA. Through the coordinating activities of the Association, the standards of the cooperating bodies have largely been unified into a single consistent group. Also, additional standards important in the electrical field have been developed.

The general industry committee in this field is now known as the Electrical Standards Committee. It is a rather formal organization, entrusted with broad powers which grew out of a similar but less effective advisory committee organized in 1926. The more formal organization signalizes the solution of a deep-seated jurisdictional controversy ,centering around the question of which of the various organizations should have the leadership in each of the technical committees. The Electrical Standards Committee, on which these organizations are now all represented, has itself taken over sponsorship for a number of the important committees, thus eliminating the problems of prestige.

Talk Out Differences

The National Electrical Safety Code was one important electrical standard around which battles raged among the interested groups for nearly a decade. Fifty accredited representatives attended the first conference. For the first time, all the interested groups were able to talk out their problems face to face. The atmosphere at moments became tense but by the end of the meeting unanimous agreement had been reached on approval of the code as an American Standard.

The organization of the Electrical Standards Committee also solved another serious problem, this time in international work. It had been found at times that the U. S. Committee of the International Electrotechnical Commission, an independent body, had international standards differing from those set up by committees working on national standards. These conflicts had led to misunderstandings in other countries, and even to the charge by Europeans that the Americans were not acting in good faith. To eliminate such conflicts, the U. S. National Committee of the International Electrotechnical Commission was reorganized so as to be identical in personnel with the Electrical Standards Committee, except for the addition of representatives of the American Society of Mechanical Engineers and a few members-at-large who have had long experience in international work.

Organization of three new industry committees in 1935 brought about the formal departmentalization of the mechanical standards work, which had been one of the most important activities of

Officers of the American Standards Association

The American Standards Association works under the direction of a Board of Directors, which makes final decisions on all matters concerning the policy of the organization, and a Standards Council, which decides all questions having to do with the development of standards. Seven industry committees coordinate and supervise the standardization activities of the many technical committees in their respective fields.

The men who, as officers of the Association, help direct its policies are: Dana D. Barnum, president; Edmund A. Prentis, vice-president; F. M. Farmer, chairman of the Standards Council; and R. P. Anderson, vice-chairman.

The general industry committees are as follows:

Safety Code Correlating Committee — L. F. Adams, chairman; Harry A. Schultz, vice-chairman; Cyril Ainsworth, secretary.

Mechanical Standards Committee — Alfred Iddles, chairman; F. H. Morehead, vice-chairman; John Gaillard, secretary.

Advisory Committee on Ultimate Consumer Goods—H. W. Brightman, chairman; Ruth O'Brien, vice-chairman.

Mining Standardization Correlating Committee —D. Harrington, chairman; Rush N. Hosler, vice-chairman; H. M. Lawrence, secretary.

Building Code Correlating Committee — Rudolph P. Miller, chairman; George N. Thompson, vice-chairman; H. M. Lawrence, secretary; J. H. Courtney, technical secretary.

Electrical Standards Committee—Charles Rufus Harte, chairman; Sidney Withington, vice-chairman; J. W. McNair, secretary.

the American Standards Association since the beginning, and expanded the Association's program into two new fields—building codes and consumer goods.

Which Is Basic — Nut or Screw?

The first few mechanical projects — screw threads, cylindrical fits, and bolts and nuts — were undertaken following requests from the British, Canadian, and Swiss national standardizing bodies for cooperation on these subjects. These requests were received just as the organization of the American Engineering Standards Committee was being completed.

In these three undertakings there were two schools of thought as to what part should be considered as basic—the nut or the screw, the shaft or the hole into which it fits. This question was discussed back and forth for fully a year before general agreement was reached on the principle that the nut, or the hole, should be basic.

All industrial countries went through a long controversy as to whether the tolerances to provide for the small but unavoidable inaccuracies in dimensioning manufactured parts should be of the "unilateral" or the "bi-lateral" type. It is now generally recognized that the unilateral system should generally be used in establishing standard systems of fits, but that in some special cases bi-lateral tolerances may be preferable.

In connection with sizes of nuts and bolt heads, there was a long-drawn-out controversy. One group wanted the nuts and bolt heads to be one-sixteenth of an inch larger than that desired by the other group. This question involved the type of production machine to be used. The larger bolt head required a "two-blow" heading machine, while the smaller one required only a "one-blow" machine. The former type was the one used chiefly in the Middle West, while the "one-blow" machine was used in the East. Two companies spent $10,000 each in special research programs on these two sizes, with the result that the smaller size was shown to be sufficiently strong. This resulted in a decision in favor of the smaller size.

A curious incident in this connection illustrates the need of international cooperation in such matters. The Germans, thinking they were following American practice, established new standards using sizes shown in an American handbook in a table under the heading "national standard." As a matter of fact, these sizes were little used in this country. They discovered their error through competition in the South American market, immediately put three engineers on a boat, and cabled us requesting conferences on the subject.

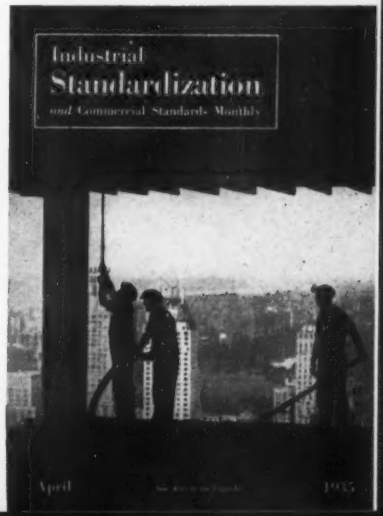
There are now more than 60 American Standards in the mechanical field and many more are under development. Of those completed, quite a number have become the "bible of the subject" in their respective industries. Among these are standards on screw threads, bolts, nuts, rivets, a comprehenive group on pipe flanges, fittings, and valves, and on small tools and machine tool elements. The work on screw threads led to the decision carried out by the President of the United States to abolish the National Screw Thread Commission as being no longer necessary.

It has not been generally recognized that there is a slight difference—three millionths of an inch —between the length of the American inch and the British inch under the legal definition as applied. This comes about because of differences in the legal ratios adopted in the two countries. In 1933 an American Standard was approved defining 25.4 as the inch-millimeter conversion ratio for industrial use. This same definition has also been adopted by other countries and, with the reference temperature of 20C (68F) for gages which has also been adopted internationally, has led to world-wide uniformity in conversion practice between inch and metric length measurements.

Building Codes

The building code work was brought into the American Standards Association in 1934 when arrangements were made by the U. S. Department of Commerce and the ASA for the American Standards Association to carry on the work in this field following the discontinuing of the Building Code Committee of the U. S. Department of Commerce. The Building Code Correlating Committee, with Rudolph P. Miller as chairman, is carrying on its work in close cooperation with the National Bureau of Standards. Its activities include a thoroughly rounded program covering all the essential features of modern building codes.

The consumer goods program has grown slowly but steadily since the American Home Economics Association brought the first two consumer standards problems to the American Standards Association in 1929. That Association had been work-



Many of the fundamental problems affecting safe use of materials, heights, weights, and design, regulated by state and city building codes, are now being studied by the building code committees of the American Standards Association.

Conference of National Secretaries which Organized the International Standards Association, New York, 1926

Left to Right: S. E. Oesterberg, Sweden; J. Gaillard, U. S.; V. List, Czechoslovakia; E. Roth, France; C. E. Skinner, U. S.; A. Kruse, Sweden; P. Drzewiecki, Poland; C. Rodgers, Great Britain; A. Roginski, Poland; E. Uytborck, Belgium; B. Rosenbaum, Czechoslovakia; J. A. Zischievsky, Russia; Sir Richard Glazebrook, Great Britain; M. Chatelain, Russia; W. H. Tromp, Holland; Sir Archibald Denny, Great Britain; C. LeMaistre, Great Britain; S. Konishi, Japan; A. F. Enstrom, Sweden; M. Lapiroff-Scoblo, Russia; C. Hoenig, Switzerland; M. Y. Inomata, Japan; O. Kienzle, Germany; A. Huber-Ruf, Switzerland; P. G. Agnew, U. S.; L. B. Atkinson, Great Britain; A. Maier, Germany; P. Girault, France; P. Bretschneider, Austria; F. J. Schlink, U. S.; G. J. Darrieus, France; K. Helberg, Norway.

ing on standards but had not succeeded in enlisting the cooperation of the manufacturer and distributor groups. In order to bring these other groups into the discussions, the A.H.E.A. asked the ASA to organize technical committees for the development of national standards for refrigerators and for weighted silk. Through the efforts of these committees the work on refrigerators has been partially successful and a code for testing domestic ice refrigerators has been developed. The proposal for a standard for weighted silk, however, was killed in the preliminary conference before it reached the procedure of the ASA—perhaps because the industry at that time was not yet ready for standardization.

The question as to whether the American Standards Association should deal with consumer goods standards was a burning problem for nearly ten years, many members of the Association believing that engineering problems were not involved in standards for consumer goods and that such standards should not, therefore, be included in the ASA program. This question has been the subject of conference after conference and debate after debate in the Standards Council and in the Board of Directors. The tremendous expansion of the consumer movement during and since the NRA, however, has changed the entire complexion of the problem, and has resulted in complete acceptance of the consumer goods program by the ASA.

The last of the general industry committees, the Highway Traffic Standards Committee, was organized this year to handle the many problems of standardization centering around the nation's highway and automobile accident toll. Standards on highway traffic problems developed by the ASA have already met with wide acceptance. The first job undertaken in this field was standardization of traffic light colors. The standard colors, green, amber, and red, were approved by the ASA in 1927. Since that time these colors have been accepted throughout the United States, and now bid fair to becoming a world-wide usage. The Interstate Commerce Commission has used reports of ASA committees in setting up its safety requirements for interstate trucks and buses; and the American Standard on safety glass, based on a thoroughgoing research program, has been adopted by many of the states as the basis for their regulations.

One important activity had its inception almost before the organization of the American Engineering Standards Committee. This is the international work.

When the AESC was being started Charles le Maistre, C.B.E., now Director of the British Standards Institution, visited the United States and was freely consulted by those engaged in organizing the new national standardization committee. The make-up of our technical committees followed closely that used first by the British, and now by most of the national standardizing bodies. Later, the experience of Germany and the other national

standardizing bodies, was freely drawn upon. It was found necessary to develop systematic interchange of technical information between the national standardizing bodies. The first steps along this line were taken in informal conferences of the national secretaries, one of which I attended in London in 1921 and another in Zurich in 1923. A third informal conference held in New York in 1926 resulted in the organization of the International Standards Association (ISA). C. E. Skinner, vice chairman of the AESC, was chairman of the conference and I served as secretary.

The organization of the ISA was proposed by the British delegation, of which Sir Richard Glazebrook was leader. The British proposal, backed by the French, Japanese, Italians, and Czechoslovakians, was for a tight, closely knit organization with strong central authority. The AESC had widely consulted its Member-Bodies and industrial groups, and found that only a loosely organized international association would be acceptable in this country.

The American idea was backed by the Scandinavian countries, Germany, and Switzerland, although Switzerland later reversed her position on the subject. The result of a week's struggle over the organization plans resulted in a constitution and by-laws which followed closely the form proposed by the British, but which provided for a loosely organized international association.

Several years passed before the ASA joined the international organization, owing to controversies which arose on matters relating to it. One of the early actions of the new ASA Board of Directors was affiliation in 1930 with the International Federation of National Standardizing Associations (ISA), as the international standards association is now officially called. The British first affiliated, then withdrew, and have rejoined this year.

The American Standards Association has taken an active part in helping to bring about international agreement on standardization problems. There have been a few outstanding successes, notably complete interchangeability of a series of ball bearings and international agreement on the 16-mm sound motion picture film. This latter was proposed by the ASA and prevented the establishment of conflicting standards in Europe and this country. In its meeting last month the Standards Council voted to accept responsibility for leadership for an international project on photography, one of the important new jobs being started by the ISA.

As this record of its first 20 years shows, one of the most important achievements of the American Standards Association has been the bringing about of agreement between the seventy national organizations constituting its primary membership and securing their adherence to the policies and methods agreed upon. Now, with this start and with most of the jurisdictional difficulties out of the way, a future of far greater opportunity lies open before us.

The first 20 years have proven the value of the undertaking to both government and industry.

The next 20 years promise even more valuable achievements—possibilities of service limited only by the use industry, government and the consumer make of the Association and the support they give to it as well as its work.

How the AESC Was Organized

by

Comfort A. Adams

First Chairman of the American Engineering Standards Committee

AFTER seven years of rather intensive service on the Standards Committee of the American Institute of Electrical Engineers, and after numerous unsuccessful attempts to get voluntary cooperation between the various standardizing bodies in the several engineering fields which overlap each other at numerous points, it became obvious to some of us that definite and recognized machinery of cooperation must be established in order to avoid unbearable confusion.

At the request of this small group, the American Institute of Electrical Engineers issued an invitation to the American Society of Mechanical Engineers, American Society of Civil Engineers, American Institute of Mining Engineers and the American Society for Testing Materials to appoint representatives to a conference committee for the discussion of this mechanism of cooperation.

The first meeting of this Engineering Standards Conference Committee was held December 29, 1916, at which time it was generally agreed that

the objective presented was a highly desirable one, and that the discussion should be continued. The next meeting was held February 17, 1917.

Later a committee with substantially the same personnel was given the definite job of preparing an organization scheme for an American Engineering Standards Committee. This organization was not completed until October, 1918, nearly two years after the first meeting of the Conference Committee.

What happened during those two years would be a long, but very interesting story, if it were related in full. In general, it was a period of education, since there was much vigorous opposition, not only from those who failed to understand the meaning of the word "standardization," and were afraid of what they called "crystallization," but also from influential individuals in the societies represented who were afraid that the prestige of their existing committees, of which they were justly proud, would be lost in an overtopping organization. In other words, fear and jealousy, as well as ignorance, were the chief obstacles which had to be overcome during two years of the hardest kind of work for the relatively small group that carried the load. As this is from memory, I cannot give credit to all of those concerned, but on the other hand must not fail to mention those whose intelligent idealism and faithful cooperation carried the movement through to a successful issue: Edgar Marburg, Henry Hess, J. A. Capp, G. C. Stone, A. A. Stevenson, and H. M. Hobart.

Of this group, Mr. Hobart and the writer are the only ones now living. It would be a serious oversight, however, to neglect the acknowledgement of the great assistance and wise advice contributed in those early days by Charles LeMaistre, secretary of the British Engineering Standards Committee.

There were many others who deserve great credit, and the omission of their names should not be considered as any lack of appreciation.

A little incident connected with Dr. Marburg, whom the writer came to regard with deep respect and affection, may be of interest. In the early days, even prior to the appointment of the organization committee, he was a bit fearful that the proposed organization would overtop the A.S.T.M., which was wholly a standardizing body, and of which Dr. Marburg was the father. He was also afraid that the writer was trying to make a job for himself. However, after several conferences, he changed his attitude completely and gave the writer one of the most appreciated compliments he has ever had. At the last meeting of the organization committee, at which he was present, Dr. Marburg, who was then ill, was asked to discuss a certain controversial question. In reply, he stated that he was under the doctor's orders to avoid all excitement, and didn't dare to take part in the discussion, but said "anything that is acceptable to the chairman is acceptable to me."

Although the job of organizing the new committee in such a manner as to produce the desired results, and at the same time to secure the hearty cooperation of the component societies, was a difficult one, it was generally agreed that the job was pretty successfully done. In any case, no change in the fundamentals of the procedure or organization has since taken place, although the field has been greatly expanded.

Standardization without the statutory power of enforcement is a difficult job in the field of cooperation, and it has involved a long period of education. It is therefore a very real satisfaction to those who were prime movers in this organization, as it must be also to those who have carried the load since those early days, to note the successful growth of the movement and the importance of the label "American Standard."

The American Standards Association and The National Bureau of Standards

by

Lyman J. Briggs

Director, National Bureau of Standards

FROM the very beginning of the American Engineering Standards Committee the National Bureau of Standards has been actively interested in promoting the development of such a coordinating agency. The men who organized the AESC 20 years ago recognized the difficulties inherent in cooperation between governmental

bodies and private organizations, and it was only after careful consideration that the five founder societies invited three Federal government departmnts to join with them. On the other hand, there were some who predicted that the composite organization thus formed would eventually usurp functions properly belonging to the government itself and some who feared that it would dominate the individual societies composing it. Perhaps these dangers were real. If so the success with which they have been avoided in the development of the ASA bears witness to the wisdom of those who have guided the affairs of the Association and of its member bodies.

Effective Cooperation

The National Bureau of Standards is the governmental agency most immediately concerned with the work of the ASA. Where the activities of two organizations touch at so many points, continual adjustments are necessary in order to maintain effective cooperation. In this case these adjustments have vitally affected the work of both organizations and the course of standardization in this country.

The crucial question as to whether standardization should be carried on under the direct supervision of the Federal Goverment or by an unofficial but representative body like the ASA was raised by the Safety Code program. At the very time the AESC was being formed, there was a growing demand for the development of industrial safety codes suitable for use throughout the country, and a large part of those concerned turned to the National Bureau of Standards as the natural center for this work. Neither governmental authorities nor industrial organizations were willing to put this program under the control of an agency so limited in membership as the AESC then was. On the other hand, the Bureau did not feel that it should assume primary responsibility for the establishment of codes which would, in effect, have the force of law.

The solution was found in the reorganization and extension of the AESC to make it a broadly representative body, with the Safety Code Correlating Committee as the first of the permanent sub-groups supervising special fields of standardization. This solution was recommended by the Bureau and was adopted as the result of two large conferences held at the Bureau in 1919.

Similarly out of discussions in recent years there has developed the Building Code Correlating Committee with its extensive program of projects, continuing the work initiated by the Department of Commerce as a basis for a national building code. Several industries not otherwise in contact with the ASA have been brought into its orbit through the approval of the Commercial Standards developed by the procedure of the Bureau's Division of Trade Standards.

Another index of the Bureau's close relation with the ASA is its representation on sectional committees. The 1938 American Standards Yearbook lists the personnel of 83 sectional committees; members of the Bureau's staff are included in 59 of them, and the Bureau is sponsor for nine of the projects as well as five others for which sectional committees are not named. Through this participation, the technical knowledge and experience of the Bureau's staff are made directly available to industry. In return, the Bureau receives information regarding industrial problems and is stimulated to further efforts through seeing the results of its work applied in practice.

In looking back over the activities of the American Standards Association for the past 20 years, one finds no need to emphasize the high quality of its work. It speaks for itself. The output in quantity has not been all that some of its friends had hoped. Here we must keep in mind the basic procedure of a sectional committee—covenants openly arrived at by mutual agreement. A sectional committee may initially embrace points of view as widely variant as those of the League of Nations. Out of the ashes of the conflagration finally arises a new American standard, purified by fire, with some adornments badly singed in the process. This procedure, while painful and sometimes slow, is nevertheless fundamentally sound.

A Higher Court

The original plan of the American Standards Association was not to initiate standards itself but rather to establish the general acceptability of standards originating in the member bodies. In my judgment, the work of the American Standards Association would advance more rapidly if it adhered closely to this original plan, which has many advantages. Under it the member bodies have a direct and productive part. Much of the work is done before the project reaches the American Standards Association and the prospective standard undergoes a process of seasoning before it is submitted. The time required in the sectional committee procedure is thus reduced and the output for the same effort correspondingly increased. Finally, in this relationship the American Standards Association takes the position of a higher court, and not one merely coordinate with its member bodies. Approved by this higher court but not initiated by it, an American Standard has a distinction and authority of its own.

What About the Future?

by

Dana D. Barnum

President, American Standards Association

FOR five years I have been intimately connected with the work of developing national industrial standards and safety codes, first as a member of the Board of the American Standards Association, and for the past three years as its President. During these years industry has had to combat economic havoc of a major depression. It has fought these conditions by increased efficiency of production and distribution made possible to a large extent by the development and use of standards. So much new work has come to the American Standards Association during this period that on more than one occasion officers and Board have wondered how to get adequate support so that the work could go on. We still do. But not one of us can look at this cooperative work of industry without a considerable measure of satisfaction. The methods of the ASA have given practical results that have stood the test of time. American Standards and Safey Codes are accepted everywhere. The safety codes form the backbone of state industrial regulations.

During the past three years more than 20 national organizations have affiliated with the ASA. The Association, by request of the interested groups, has enlarged the scope of its work into new and important fields—the development of standards for consumer goods, the development of traffic standards, the prevention of occupational disease hazards. The ASA has been requested by government to undertake such important jobs as drawing up specifications for inspection of buses and trucks used in interstate commerce. Over and over again in these years business and government groups have turned to the machinery of the American Standards Association for a forum in which to work out important mutual problems. During this time the chief criticism that I have heard of the ASA is that it moves too slowly, that delay in getting standardization work through the committees has sometimes resulted in a handicap to industry. I have never heard a criticism of the fundamental soundness of the methods of work.

Widely Accepted

American Standards and Safety Codes are widely accepted because they are arrived at by comprehensive representation and cooperation between the industrial and governmental groups concerned. Each group has a VOTE, not just a *voice*, in determining these matters, and consequently the likelihood of controversy and litigation after the standard has been approved is practically eliminated. Standardization has proved to be one of the most fruitful fields in which government and industry can cooperate to the end of increasing production, reducing costs, and eliminating waste.

With the foundation we have built and the improvements we can bring along the lines we are now working on, the question arises: How about the future?

Production today has been estimated to be nowhere near the needs of the people of the United States. To meet these needs, production, distribution, and utilization costs will have to be reduced. Waste of all kinds must be eliminated. Industry has the Knowledge and Experience to work out the cost end of this problem; but I doubt if it can do it alone without the intelligent cooperation of Government. Intelligent and efficient administration by regulatory bodies of standards and codes drafted in cooperation with industry, in accordance with experience and knowledge of the underlying principles of production, distribution, and utilization, should make possible what neither industry nor government can accomplish alone.

The American Standards Association must continue to provide ways and means of establishing standards that industry will accept, and codes that regulatory bodies can enforce. It must do this work in an efficient and expeditious manner. It must keep within its legitimate field. It must remember that the real object is the conservation of manpower, time, and material. It must confine work to the necessary things. Above all, it must be sure that every substantially interested group—public, government, and industry—is fairly represented in the work. And further it must see that this responsibility is appreciated by every one of its members.

New ASA Committee to Develop Standards for Photography

Both national and international standards will be studied by committee to be named by American Standards Association

CAMERAS, films, light meters, printing apparatus, and many other types of photographic equipment will be considered in both a national and an international standardization project under the leadership of the American Standards Association, it was decided when the Standards Council of the ASA voted at its meeting September 29 to authorize the organization of a new sectional committee under ASA procedure. This committee will consider development of national standards for photography, and will take the leadership and cooperate in an international project on the same subject.

The international work was proposed some time ago when the International Standards Association asked the American Standards Association to act as secretariat for an international project. This invitation was accepted by the ASA following a conference at which the industry recommended such action.

The work of the new sectional committee will cover definitions, dimensional standards, and methods for testing, rating, and classifying performance characteristics of materials and devices used in photography. It will affect amateur, portrait, commercial, and news photography, as well as process work, aerial photography, radiographic and photomicrographic photography, documentary, medical, and photomechanical photography, and in fact, practically all phases of photography with the exception of cinematography.

Some attempts have already been made to set up logical and systematic nomenclature and definitions in certain relatively small photographic fields. It is expected that the program of the new committee will include the preparation of a well worked out system of nomenclature and terminology to help eliminate confusion due to the use of words and phrases in different senses by different authors.

Definite dimensional standards to cover many materials and appliances in photography will also be considered by the new committee. Some work has already been done in this direction, and the committee will collect and codify such material. Manufacturers of sensitive materials and photographic equipment have established many dimensional standards for their own convenience and part of the work of the committee will be to bring these manufacturers together to agree on standards for greater interchangeability.

Forty organizations are being invited to name representatives, including many organizations representating users of cameras and finishing equipment, manufacturers of cameras and photographic materials, and technical societies.

The Optical Society of America has accepted the administrative leadership for the work.

Revised Recommendation Lists 29 Varieties of Surgical Dressings

The first revision of the Simplified Practice Recommendation on surgical dressings, R133-38, effective March 1,1938, covers nomenclature, sizes, and methods of preparation of sponges, abdominal packs, sterile gauze dressings, pads, and cotton balls. It is based on studies of the effectiveness of the orginal recommendation made by the simplification committees of the American Hospital Association and the American College of Surgeons, in cooperation with the standing committee of the industry. It consists essentially in changes with respect to size, ply, gauze construction, weight of filler, etc., of certain of the dressings; the elimination of four items and the addition of five others. An entirely new group of dressings, cotton balls, is included. Methods of preparation using flat, cut pieces of gauze instead of dressing rolls are now recommended.

The schedule as now revised lists 29 varieties of dressings. No definite figures are available as to the number of varieties of dressings prevailing before the adoption of simplification. The American College of Surgeons, however, states that its first survey revealed that approximately 5,000 different shapes and sizes of dressings were in use in the hospitals of the United States and Canada, and that 1,500 varieties of one type were in use for practically the same purpose.

American Standards R
To Be Named in

A PERMANENT staff representative to be stationed in Buenos Aires will be appointed by the American Standards Association to cooperate with the Argentine national standardizing body and the U. S. Chamber of Commerce in Argentina in promoting the use of American industrial standards, the ASA Board of Directors decided at its meeting September 28. The action taken by the Board is contingent upon the guarantee of sufficient funds to support the work by the concerns interested in the project.

A committee was appointed to draw up a tentative budget and to determine whether and from what sources financial support may be forthcoming. The members are:

L. J. Briggs, director, National Bureau of Standards
C. L. Collens, president, Reliance Electric and Engineering Company
Howard Coonley, chairman of the board, Walworth Company
R. E. Zimmerman, vice-president, United States Steel Corporation
F. M. Farmer, vice-president, Electrical Testing Laboratories

This committee, with the advice and collaboration of the National Foreign Trade Council and the American firms participating in the financial program, will assist in selecting the proposed representative.

The decision of the ASA Board was based on recommendations of a conference attended by representatives of 24 large manufacturing concerns, associations, and technical societies, held June 28 under the auspices of the ASA with the cooperation of the Bureau of Foreign and Domestic Commerce of the U. S. Department of Commerce and the National Foreign Trade Council. The conference discussed the need of a better knowledge of American standards in South America. The fact that British, German, and other interests have for some time been active in encouraging adoption of their standards had already brought forth suggestions from the U. S. Chamber of Commerce at Buenos Aires that American interests should be represented, and requests for appointment of a representative were received by the ASA from the U. S. Steel Products Company and the Republic Steel Company.

Argentina, primarily an agricultural country, is the market for many American-made products. With the exception of Canada, it provides the leading outlet for motor trucks. Both General Motors and Ford have assembly plants there.

U. S. Organizations Recommended ASA Argentine Representative

A conference of many organizations interested in trade with South America recommended to the ASA Board of Directors that the American Standards Association arrange for a staff representative in Buenos Aires. The organizations whose representatives attended the conference are:

Allegheny Steel Company
American Institute of Electrical Engineers
American Iron and Steel Institute
Armco International Corporation
Babcock and Wilcox Company
Business Publishers International Corporation
Corning Glass Works
Fairbanks, Morse and Company
Ingenieria Internacional
Ingersoll Rand Company
International General Electric Company
Jones and Laughlin Steel Company
Machinery Division, Bureau of Foreign and Domestic Commerce, U. S. Department of Commerce
Manufacturers Standardization Society of the Valve and Fittings Industry
Motor and Equipment Manufacturers Association
National Foreign Trade Council
Otis Elevator Company
Republic Steel Corporation
Scientific Apparatus Makers of America
Society of Automotive Engineers
The Baldwin Locomotive Works
U. S. Department of Commerce
U. S. Steel Corporation
U. S. Steel Products Company
U. S. Testing Company
Westinghouse Electric and Manufacturing Co.
Westinghouse Electric International

Representative in Argentina

Cattle being one of the most important of Argentine products, meat-packing is the principal Argentine industry, and Armour and Swift both have packing plants in Argentina. North American oil companies have an interest in the Argentine petroleum business—Standard Oil of New Jersey, Shell, Texas Company, and Socony-Vacuum all having investments there. Automobile tires are made in Argentina by Goodyear, Firestone, Michelin, and Dunlap. DuPont has a rayon factory, and has an interest in the Argentine chemical industry, and the International Telephone & Telegraph Company's investment in Argentina is its largest single foreign investment. The Otis Elevator Company makes the cabins, doors, shafts, and other equipment for its elevator systems sold in Argentina at Buenos Aires.

A building boom in Buenos Aires recently produced such a demand for Portland cement that requests have been made by architects and builders to permit the free importation of cement. And at least one leading newspaper is pushing a campaign for reduction of the present high duties on automotive imports, it is reported. The country is embarked at present on a huge road building program which is expected to stimulate trade—particularly in connection with the use of automobiles.

The action of the Board of Directors of the American Standards Association in authorizing the appointment of an Argentine representative is one step in the program of carrying out the purpose of the ASA as provided in its Constitution "to promote a knowledge of, and the use of, approved American industrial and engineering standards, both in the United States and in foreign countries."

Use of American Standards in Argentina Vital to All American Manufacturers

by

J. Seward McCain

Business Publishers International Corporation[1]

THE proposed movement to promote general acceptance and use of American industrial standards in Argentina under leadership of the American Standards Association is a matter of vital importance to manufacturers in the United States, whether or not they are directly engaged in foreign trade.

The loss of any important part of the Latin American market for industrial equipment and all technical products cannot fail to intensify competition in these lines within the United States, while the expansion of the export market will divert a substantial percentage of production, thus providing profitable overseas business for the foreign traders and improving the sales situation at home for others.

The importance of Argentina as an independent market, as well as an influence upon industrial-engineering thought in neighboring countries, is generally understood. That manufacturers in every industrial nation will do their utmost to dominate the Argentine market may be taken for granted. What is not so self-evident is that such an effort is already well under way, and that the activities of at least one competitor nation are so

[1]Publishers of *American Automobile Over-Seas Edition; El Automovil Americano; Ingenieria Internacional;* and *El Farmaceutico.*

Argentina uses many U. S. automobiles, and except for Canada is the largest market for U. S. motor trucks.

well organized as to constitute a serious threat to continued American leadership.

In meeting this situation, the first problem is to secure universal approval for the standards upon which our own industrialism has been built, so that purchase specifications and codes will not be written to favor European products at the expense of those offered by American suppliers. It has been suggested that the American Standards Association take the initiative in a movement to solve this problem. Fortunately, it is not too late to look for a thoroughly satisfactory solution through that agency, although prompt action is undoubtedly required.

Association action in accordance with the proposed procedure is necessary and desirable, and it is to be hoped that it will be forthcoming. Nevertheless, it can not relieve individual manufacturers of their responsibility for independent coordinate activity. To make sure that Latin American industrial development will continue to follow the American pattern rather than that of Europe, and to insure a permanent and expanding market for their individual products, our manufacturers must undertake a concerted program that goes beyond the conventional export sales campaign.

Such a program need not conflict with the necessary work of promoting immediate business, nor impose undue expense. Indeed, it can make its own contribution to reduced sales cost by increasing promotional efficiency. But it does call for a radical change in viewpoint. If we are to hold our leadership in the Latin American market, exporters of capital goods must sell American technology along with their own particular products, and pack American industrial science into the boxes that hold their shipments.

Our objective must be the extension of Pan-Americanism to the broad field of industry through closer collaboration with the Latin-American engineering profession in government and industry. Adequate means are available for publicizing the advantages to be derived from American principles of industrial standardization, mechanized production, functional design, motion study and safety engineering in the creation of higher living standards, more jobs, and better working conditions. Each manufacturer who bases his sales promotion upon the part his product can play in the promotion of industrial efficiency according to the American conception will be utilizing his most effective appeal and at the same time adding strength to the movement that can do most to advance the larger community of interest upon which his own welfare depends.

Industry Needs Standards Engineer To Promote Argentine Use of Products

DURING the past forty years exporters of the United States have been confronted in Argentina, as well as in other foreign countries, with difficulties in meeting some of the prescribed technical specifications. The inherent differences in national engineering standards of the principal manufacturing countries of Europe, as compared with those of the United States, are obvious.

It is recognized that a number of manufacturers

by

Eugene P. Thomas

President, National Foreign Trade Council

Many American manufacturers are seriously handicapped without adequate representation on engineering standards problems. Activity by other countries makes appointment of an Argentine representative especially important now, says Mr. Thomas.

Blank & Stoller, Inc.

Eugene P. Thomas

of these countries obtained a favorable position in the early years of this century in Argentina and other consuming markets.

One reason was the fact that huge investments were made by Great Britain and, to a smaller degree, by other European countries. In the case of Great Britain, alone, foreign investments are stated to exceed four billion pounds. It has been a cardinal principle of Great Britain that orders for goods should logically follow the investment of British funds in foreign countries.

Another reason for the early influence of European manufacturers was that generally they were first to introduce their standards in foreign markets, before many American manufacturers made systematic and intensive efforts to obtain foreign business. It was therefore natural in many cases that the Government officials and engineers of South American countries should give preference to the basis of standards originally adopted, with the subsequent modifications, as proposed by European nationals in accord with their recognized respective standards.

Several factors have been responsible for the competitive success of Americans in overcoming these obstacles. The superiority of American standard practice and quality gradually, even before the Great War, compelled recognition of American goods and in many cases enabled the introduction of American standards. During the World War a number of consuming markets were compelled to turn to the United States for necessary supplies, and automatically accepted American standard specifications—although in some cases only for the period of 1914-20. In spite of this limitation, substantial gains were made by American manufacturers, due to the favorable experience derived from the use of American equipment, machinery, etc., both prior to and during this period. Direct investment of American capital during the twenties—which in the case of South America alone has exceeded five billion dollars—had a great influence on the extension of the use of American standards by the companies making direct investments, and, as a consequence, influenced additional usage.

This was not the case, however, in respect to our portfolio investments. The practice of giving adequate consideration to the purchase of American materials, as recommended by the National Foreign Trade Council in 1922 and 1924 as a matter of sound policy in the making of American loans to foreign countries, was not generally adopted. Such an official policy was, however, adopted by the British Government to insure to British manufacturers the advantages emanating from the investment of British funds.

The enterprise of American manufacturers and the intrinsic merit of their goods have to a large extent proved successful in overcoming the handicaps proposed by the continued adherence of a number of Latin American countries to European standards of manufacture. The inclination of Latin American countries to adopt European standards has been artificially supported by bilateral and compensation agreements imposed by European countries in their trading with most of the Latin American republics. In the case of Argentina, it has been practically impossible for several months past to obtain import visas for American goods which would enable the official rate of exchange to be secured for the article imported. This has resulted in an average discrimination in price of about 20 per cent against American goods, in competition with those of Great Britain. Notwithstanding, however, all the obstacles

imposed by discriminatory treatment by provision of official exchange and by bilateral and compensation agreements, the competitive success of American manufacturers in Latin America, generally, during the past five years, has been amazing.

In 1937, United States exports to Latin America —about 85 per cent of which are in manufactured goods—increased 46.4 per cent, as against increases of 31.0 per cent by Great Britain, 27.9 per cent by Germany, 65.1 per cent by Italy and 52.1 per cent by Japan.

The proposal that the American Standards Association, in cooperation with the American Chamber of Commerce in Argentina and the National Foreign Trade Council, arrange for a qualified American engineer to be stationed at Buenos Aires is not only a logical step, but one which would have been advisable even twenty years ago.

Certain American manufacturers, whose products are susceptible to discrimination if not manufactured in strict accordance with adopted specifications—which in many cases may have been especially designed for European trade and in accordance with the respective standards of the manufacturing country—will continue to be seriously handicapped until they can be adequately represented, from an engineering standards standpoint, in Argentina and other countries.

This generalization may not apply to manufacturers whose products are so well entrenched from long experience and usage that they do not need any advocacy of American standards. On the other hand, a large number of American manufacturers will continue to be susceptible to the multiplicity of influences which can be exerted by the foreign manufacturer in securing the adoption of his own or his national standards. An engineer capable of supporting and demonstrating the claims of American standards will greatly aid the representatives of many American manufacturers in the solicitation of business.

The American manufacturer claims only equality of opportunity—the open door. It is not always essential that American standards should be written in the purchaser's specifications. Frequently it will suffice that American standards be admitted as an alternative. But, on the other hand, there may be insuperable difficulties if the American manufacturer has to offer goods based on American specifications which are not recognized as the equal of those specified. His bids may be thrown out or penalized as deviating from the requirements.

The action, therefore, of the American Standards Association should receive the encouragement and cordial support of all export manufacturers whose products are susceptible to discrimination on account of non-conformity with European standards; unless, as previously stated, the position of the American manufacturer is so insured against all such competitive influences that he does not require the prestige and backing of the Association in its efforts to obtain equality of treatment for American standards.

New Canadian Standards Available from ASA

The following standards issued by the Canadian Engineering Standards Association have recently been received by the American Standards Association:

Welded Steel Buildings, Welding By the Metallic Arc Process—Tentative Welding Qualification Code for Fabricators, Contractors, Supervisors and Welders (S47T-1938)

Construction and Test of Rigid Steel Conduit (C22.2-45-1938)

Construction and Test of Electric Air-Heaters (C22.2-46-1938)

The first of these, S47T-1938, specifies standards and tests for the qualifications of fabricators, contractors, supervisors and welders engaged in the construction of welded steel buildings.

The second standard, C22.2-45-1938, applies to rigid steel conduit for use as a metal raceway in the installation of wires and cables.

The specification for air-heaters, C22.2-46-1938, covers both portable and stationary electric air-heaters, for potentials of 250 volts and less.

Copies of these standards may be ordered or borrowed from the American Standards Association Library.

Outdoor Advertising Association Names Stewart on ASA Council

The Outdoor Advertising Association of America, Inc., which became a Member-Body of the American Standards Association recently, has named J. B. Stewart, vice-president in charge of its legal and legislative division, as its representative on the ASA Standards Council. W. F. Hurd has been appointed to act as Mr. Stewart's alternate.

As a representative of the Advertising Association on the Standards Council, Mr. Stewart will have a voice in all actions of the American Standards Association on approval of standards and standardization projects.

New Copper Cable Standard Adds To Series on Wires and Cables

by

J. J. Morrison[1]

Member of Technical Committee, Sectional Committee on Insulated Wire and Cable (C8)

Series of 18 standards, unifying specifications for insulated wire and cable for light and power use, now enables users to select standard provisions necessary to complete technical specifications for wide variety of types of insulated wire and cable

Latest standard provides for concentric copper stranding for insulated conductors

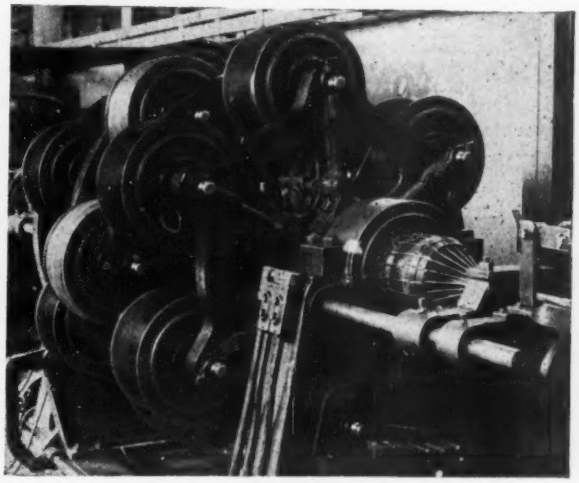
THE standardization of concentric copper strand, Hard, Medium-Hard, or Soft, for insulated conductors, recently approved by the American Standards Association, completes a project which has been under discussion for over fifty years.

In the early 80's, with the rapid growth of the electrical industry, the need arose for copper conductors, preferably stranded for the larger sizes. At that time sizes, even of solid wire, meant little on account of the numerous gages in common use. All wire was sized by gage, and variations in diameter due to gage wear were possible even in wire shipped from a single plant. The history of determining solid wire gage sizes and the final recognition of the American Wire Gage (formerly Brown & Sharpe) as a standard gage for copper wire in the United States forms an interesting chapter in the records of standardization.

During this period of confusion, with its multiplicity of gages, The Edison Standard Wire Gage was proposed by the Edison Electric Light Company. This gage was based on circular mil area of cross section; *i. e.*, No. 5-5000 circular mils, No. 10-10,000 circular mils, and so on. While the gage did not survive, the simplicity of expressing conductor size in circular mils was recognized and has become the basic method of expressing the size of electrical conductors in American practice. As such it should be noted that the circular mil method is purely an American practice as compared with measurements in square inches and square millimeters in European usage.

The basic physical makeup of concentric strand is simple, as it follows a geometric rule that with round wires of given diameter the number of wires in each layer will increase by six. Thus a straight central wire is surrounded by helical layers of wires of the same diameter, the alternate layers having a twist in opposite directions. In the first layer about the central wire, 6 wires are used; in the next layer 12; then 18, etc. to form 7, 19, 37 wire cable.

The size of the stranded conductor is governed by its cross section in circular mils. Since the



Courtesy American Steel & Wire Co.

Machine for laying up stranded copper cable from individual wires. The front section and forming die are shown here.

[1]Operating Department, American Steel & Wire Company, Worcester, Mass.

This photograph shows a section of a concentrically stranded cable

cross section in single wire is the circular mils of a square of its diameter in mils, the cross sectional area of the stranded conductor will be the product of the number of wires in the conductor and the circular mil area of the individual wire size used. As can be readily seen, this is far more simple than the European method of figuring in square inches and square millimeters. The sizes of stranded conductors smaller than 250,000 circular mils are more often, by common usage, stated by means of the gage number in the American Wire Gage of a solid wire having approximately the same cross sectional area. In the tabulation in the Standard Specification, both sizes are included for convenience.

In the tabulation the individual wire sizes shown are those which will give as close to the exact circular mil area required as is practically possible. This follows a definite and old practice and corresponds to that shown by the National Bureau of Standards in Circular No. 31. There is also a practice of using the nearest American Wire Gage size for the individual wires for stranded conductors where exact size is not of importance. This practice does not conform to the Standard and is used as a matter of convenience or cost.

The outside diameters of the stranded cables are not given in the tabulation but may be very readily calculated. For a cable of seven wire construction, the outside diameter is three times the diameter of one wire; for a cable of 19 wire construction it is five times the diameter of one wire, and so on.

Usage Well Established

By the Standard, the usage of the various classes of stranded copper cable is well established and follows normal practice in the industry. Class A is to be used for weather-resistant (weatherproof), slow burning and slow burning weather-resistant (weatherproof) cables. Class B is to be used for cable insulated with various materials such as rubber, varnished cloth, paper, etc., and for cables indicated under Class A where greater flexibility is desired. Class C and D are to be used for cables where more flexible stranding is desired than in the other two classes. The tabulation also includes a Class AA, covering a range of sizes from 1,000,000 C.M. to No. 4 A.W.G., which is for use where a purchaser requires a cable composed of fewer number of larger wires than called for in Class A.

A procedure for joints in the individual wires comprising the cable, and particularly their frequency, is definitely established, thus clarifying a point which has been misunderstood and a frequent cause for argument between the purchaser and the manufacturer.

This standard culminates many years' work by the National Bureau of Standards, the American Institute of Electrical Engineers, and the American Society for Testing Materials, as well as that of the manufacturers and many purchasers, and offers a specification which is simple and effective and of decided value to the electrical industry as a whole.

Stranded Copper Cable Estimate of Production for the Electrical Industry[1] – Year 1937

Size B&S	*Lb per M ft*	*No. feet*	*Pounds*
6	31.05	71,000,000	5,754,550
5	102.2	111,000,000	11,344,200
4	128.9	62,000,000	7,991,800
3	162.5	81,000,000	13,162,500
2	204.9	79,000,000	16,187,100
1	258.4	17,000,000	4,392,800
1/0	325.7	43,000,000	14,005,100
2/0	410.9	49,000,000	20,134,100
3/0	518.1	6,000,000	3,108,600
4/0	653.3	34,000,000	22,212,200
CM			
250,000	771.9	4,500,000	3,473,550
300,000	926.3	7,500,000	6,947,250
350,000	1081	8,500,000	9,188,500
400,000	1235	3,500,000	4,322,500
450,000	1389	100,000	138,900
500,000	1544	16,500,000	25,476,000
550,000	1698	—	—
600,000	1853	2,000,000	3,706,000
650,000	2007	100,000	200,700
700,000	2161	200,000	432,200
750,000	2316	2,500,000	5,790,000
800,000	2470	1,000,000	2,470,000
850,000	2624	100,000	262,400
900,000	2779	300,000	833,700
1,000,000	3088	5,000,000	15,440,000
1,250,000	3859	400,000	1,543,600
1,500,000	4631	500,000	2,315,500
2,000,000	6175	1,500,000	9,262,500
	Total	607,200,000	210,096,250 (105,048 tons)

[1]Provided by the Statistical Department of the National Electrical Manufacturers Association and the Anaconda Wire and Cable Co.

Technical Subcommittee Prepared Standard

The technical subcommittee which prepared the new American Standard Specifications for Bare Concentric-Stranded Copper Cable for Insulated Conductors: Hard, Medium-Hard, or Soft (C8.14-1938) for consideration by the Sectional Committee on Wires and Cables (C8) under the procedure of the American Standards Association, has the following membership:

Dean Harvey, Westinghouse Electric & Manufacturing Co., *Chairman*
W. H. Bassett, Jr., Anaconda Wire and Cable Co.
R. S. Bull, Pittsburgh Railways Co.
A. B. Campbell, Edison Electric Institute
T. S. Fuller, General Electric Co.
J. J. Morrison, American Steel & Wire Co.
R. A. Schatzel, General Cable Corp.
R. C. Waldron, The Okonite Company

Copies of the standard are available at 30 cents each from the American Standards Association. ASA Members are entitled to 20 per cent discount.

Manufacturers Willing to Certify That Commodities Meet Commercial Standards

Through the application of the certification plan inaugurated by the National Bureau of Standards, approximately 1750 manufacturers have indicated that they are willing to certify that the goods they supply meet the requirements of certain selected commercial standards.

A list of such manufacturers has recently been published by the Bureau in a revised edition of its Letter Circular LC277a. These "sources of supply" have indicated their desire to furnish materials on contracts based on selected commercial standards, and to certify to purchasers, at the time of placing contracts, that the material thus supplied is guaranteed to comply with the requirements and tests of these standards.

The compilation and distribution of lists of sources of supply tends to facilitate the use of nationally-recognized standards and specifications by minimizing the disadvantages to small quantity purchasers because of their lack of testing facilities to determine whether or not commodities delivered to them conform with the requirements of the standards or specifications, the National Bureau of Standards explains. Guarantees on the part of the manufacturers are in the form of certificates issued by them to the purchasers. In addition, the use of "willing-to-certify" sources of supply tends to promote economy in that a wider range of competitive bidding can be invited, and satisfactory material can be insisted upon.

Letter Circular LC277a, listing "willing-to-certify" sources of supply, is available for distribution to all interested agencies and individuals upon request directed to the Division of Codes and Specifications, National Bureau of Standards, Washington, D. C.

Information concerning the application of the certification plan not only to commercial standards but also to Federal specifications, or on any other phase of the work in standardization, including the labeling plan, can also be obtained from the Codes and Specifications Division.

A.S.M.E. Elects New Officers

The American Society of Mechanical Engineers announces the election on September 27th, 1938, of the following new officers for 1939 who will assume office on December 9, 1938:

President—Alexander G. Christie, Professor of Mechanical Engineering, Johns Hopkins University.

Vice-Presidents—Henry H. Snelling, Senior Member, Snelling & Hendricks, Washington, D. C.; William Lyle Dudley, Vice-President in Charge of Design & Sales, Western Blower Company, Seattle, Wash.; Alfred Iddles, Application Engineer, Babcock & Wilcox Company, New York, N. Y.; James W. Parker, Vice-President and Chief Engineer, Detroit Edison Company, Detroit, Mich.

Managers — Clarke Freeman, Vice-President in Charge of Fire Prevention, Engineering & Underwriting, Manufacturers Mutual Fire Insurance Company, Providence, R. I.; William H. Winterrowd, Vice-President, Franklin Railway Supply Company, Chicago, Ill.; Willis R. Woolrich, Dean of Engineering, University of Texas, Austin, Texas.

Public Schools in Pennsylvania Add Course for Consumer Education

A course in consumer education will be added in the public schools of Pennsylvania, Dr. Lester K. Ade, superintendent of public instruction for the State of Pennsylvania, announced recently. The consumer education plan will be worked out in cooperation with the Department of Agriculture.

Dr. Ade said that at present "The consumer's standards in judging many of his possible purchases are a mixture of his own experience, the ancient adages of trade, the tips of 'wise' friends, the slogans of advertising campaigns, the 'line' of high-pressure salesmen, and a faith in well-known brands."

Recent Meetings Show Progress In International Standards Work

SEVENTEEN technical committees of the International Standards Association, and the ISA Council, held meetings at Berlin June 20 to July 2, 1938. Twenty-one countries were represented at these meetings by 457 delegates—252 from countries other than Germany, and 205 from Germany itself. In addition, representatives of the International Commission on Aerial Navigation and the International Air Traffic Association attended the meetings of the committee on Aeronautics.

Reports of the action taken at these meetings are now available and show progress on work affecting many problems of interest to American industry.

The American Standards Association represents American industry on eight of the ISA committees that met in Berlin, and is now considering participation in the work of the new committee on Welding. These committees are: steel and iron, petroleum products, preferred numbers, refractory materials, paints, cinematography, textiles, upholstery materials.

Steel and Iron, ISA 17 (Secretariat: Switzerland)—These meetings extended over six days and were attended by 58 delegates. Guests were present from Argentina and Luxembourg.

During the last few years the American Standards Association has been represented on this committee by agreement with the American Society for Testing Materials and the American Iron and Steel Institute. According to the present arrangement all matters concerning this project will be referred to A.S.T.M. committee A-1 on Steel.

Work has been completed in principle on the following:

1. *General Problems.* These include such matters as the classification of standards for steel and iron. A comprehensive plan involving 1,000 standard sheets has been prepared. For the time being only a small part of this plan is under consideration. Other problems in this group include marking of steel, taking and testing samples, specifications for heat treatment of steel, and general technical purchase specifications.

2. *Testing of Materials.* Proposed recommendations have been developed for the following tests: Tensile strength; Folding (formerly called Bending); Brinell; Rockwell; and Notched Bar.

3. *Forgings.* Specifications for forgings, including properties and chemical composition of machine steels, carburizing steels, and normalizing steels, are now under consideration. The specifications for forgings of different thicknesses (up to 40 mm; from 40 to 100 mm; and above 100 mm) are given separately.

4. *Bar Steel, and Steel Sections.* These proposals include standard sheets for materials, and dimensional sheets. They cover angle and tee sections, I and channel sections, wide flange sections, and bars with round, square, hexagon, and octagon cross section, steel strip, etc.

Progress has been made in preparation of test specifications for testing machines, and specifications for steel sheets and plates, it was reported.

Petroleum Products, ISA 28 (Secretariat: United States)—The American Standards Association holds the secretariat for this committee. Last year in Paris the work was subdivided into three groups: Methods of Test; Nomenclature of Petroleum Products; and Symbols. The work of each group was subdivided among a number of subcommittees, and the secretariat of each was assigned to one of the participating countries.

Methods of Test. Five subcommittees of this group met at Berlin on:

Density and Specific Weight
Flash-point, Ignition Point
Carbon Residue
Pour Point
Melting Point and Solidifying Point of Paraffin

Nomenclature for Petroleum Products. Meetings were held by the subcommittees on Refinery and on Transportation, Storage and Distribution.

In addition to an ISA Dictionary for Petroleum Products, which it is expected will take many years to complete, it was decided to develop an accessory dictionary, prepared on the basis of the vocabularies and proposed nomenclatures now available, to serve petroleum experts until the ISA dictionary has been completed.

Graphic and Letter Symbols. This subcommittee also held a meeting, attended by 19 delegates, at which plans were made for carrying on the work.

Preferred Numbers, ISA 32 (Secretariat: France)—Final work was done on the ISA recommendation on this subject, which will be pub-

lished soon. Since the time that work on the American Standard for Preferred Numbers was started, an exchange of information between the American committee and the ISA committee has been carried on regularly. (The American Standard, which is similar to the recommendations now being made by the ISA committee, was approved by the ASA in 1926.)

Refractory Materials, ISA 33 (Secretariat: Germany)—The meeting was attended by 35 delegates including observers from Brazil and China.

The meeting discussed the standardization work done in the several countries in this field, and particularly the German standards for refractory materials. The discussion clearly indicated the problems that would arise in any efforts toward unifying national practices.

It was decided to organize a subcommittee of leading experts in the countries participating. The meeting also subdivided the work and assigned different sections to the various countries.

Paints, ISA 35 (Secretariat: Holland)—Before this meeting was held the American Standards Association transmitted a memorandum concerning its recommendations, on behalf of the American delegate, Dr. Gardner. The subjects discussed included Red Lead and White Lead; Covering Power; Oil Requirements; Determination of Zinc in Zinc White and Lithopone; Light Fastness of Lithopone.

Two ISA proposals for Red Lead, White Lead, Zinc White, and Lithopone were approved by the entire committee.

New subcommittees were organized for drafting test specifications for Titan White, Zinc Oxide for Paint, Drying Oils, Turpentine Oils, Lacquer, Benzine and Benzol.

Cinematography, ISA 36 (Secretariat: Germany)—In these meetings, attended by 31 delegates, complete agreement was reached on all points discussed. These include, for example, dimensions for 35, 16, and 8 mm film and the dimensions of camera and projector apertures for the three widths of film.

Important decisions concerning safety film, projection reels, and cores for unexposed film were made, and it was decided to start work on a number of new standardization problems in cinematography.

Textiles, ISA 38 (Secretariat: Germany and Italy)—The American Standards Association refers all questions concerning this project to the Committee on Textiles of the American Society for Testing Materials. The chairman of this committee then refers each subject to the expert on his committee best qualified to handle it.

Agreement was reached at the Berlin meetings on the designation of yarn numbers and the direction of twist. A comprehensive proposal concerning specifications for conditioning was discussed, as well as a conversion table for yarn numbers.

A subcommittee on unification of methods of test for textile materials was organized, because the committee found that the tests in the different countries varied considerably.

Upholstery Materials, ISA 40 (Secretariat: Hungary)—Agreement was reached on designations and basic technical definitions for certain upholstery materials.

Welding, ISA 44 (Secretariat: France)—This new ISA committee held its organization meeting, attended by 38 delegates including observers from Argentina.

Before the ISA meetings, the American Standards Association had made a canvass of a number of organizations interested in this work, and submitted some suggestions to the ISA committee before its meeting. In the spring of this year the Mechanical Standards Committee of the ASA had recommended that the ASA ask for a scope of the work which will be undertaken by the committee before the ASA decides on active participation.

The new committee decided to organize the following subcommittees:

Symbols and definitions
Welding apparatus and tools, materials, accident prevention
General rules, preparation and performance of welding operations and welding connections produced by different methods
Basic and accessory materials (weldability, heat treatment, etc.)
Methods of test (mechanical tests, tests not requiring destruction of the test piece, etc.)
Training, testing and supervision of welders; and
General rules and recommendations for the computation and structural design of welding connections

These subcommittees will keep in touch with other ISA committees interested in welding problems, and the ISA committee on welding will also keep in touch with all international organizations active in this field.

ASA Representation Desirable?

The American Standards Association is not represented on the other ISA technical committees. In several cases such representation would probably be desirable because of the important interest that American industry has in the subjects covered, and the prestige which American practice would carry if properly supported in committee work. Some of these ISA projects are:

Aeronautics, ISA 20 (Secretariat: Germany)—For years the American Standards Association has regularly been transmitting proposals and reports from this ISA committee to the Society of Automotive Engineers. This was done after an effort to arouse general interest in the project among American groups had failed. This

failure also explains the fact that the ASA does not take an active part in this project. Efforts to bring about active participation in the work are now being made.

Among the subjects on which agreement was completed at this meeting are screw threads, safety belts, and tank gages.

Progress was made in the work on fuels, airplane tires, spark plugs, tubing for structural purposes and conduits, and symbols and definitions applying to the mechanics of flight.

The work on fuels will be coordinated with the work of ISA committee 28 on Petroleum Products, and the work on airplane tires with that of ISA committee 31 on Tires, Rims, and Tire Valves on which the ASA is represented.

New work was started on principles for the computation and rating of airplanes and engines, propeller hubs, electric lamp holders, and identification colors for electric conduits. This work, which affects interchangeability of servicing airplanes, is particularly important, it was pointed out, because of the steady increase in international air traffic.

Automobiles, ISA 22 (Secretariat: France)—Progress was made on electric light plants and electric starters. Other subjects discussed were fog lamps, reflex reflectors, windshield wipers, diagrams for electric cable connections, speedometers (interchangeability) and couplings and electric cable connections between an automobile and a trailer.

Machine Tools, ISA 39 (Secretariat: Germany)—The American Standards Association has regularly brought the activities of this committee to the attention of the machine tool builders in this country, although there is no formal American participation. Several important decisions taken during the last few years by this committee have been based primarily on American practice.

One of these subjects is machine tapers. The American Standard approved in 1937 was given due consideration, but now that a revision of this standard is under consideration, the ISA committee has decided to study the international problem anew.

The ISA recommendation on tapers for milling machine spindle noses is based on a standard adopted by the National Machine Tool Builders' Association in 1927. In connection with this use of their standard, the American machine tool builders have made the concession that metric threads may be applied instead of American Standard threads. Making allowance for this variation, it appears that world-wide uniformity is in sight.

Progress has also been made on dimensions of connecting flanges for electric motors and standardization of machine speeds, a problem closely connected with speeds of electric motors.

New subjects considered by this committee include the color of paint for machine tools, tee-slots, lathe centers, and the direction of motions made in operating machine tool levers and handwheels.

No Direct Interest

Several committees in which the American Standards Association has no direct interest also met in Berlin:

Metric Screw Threads, Bolts and Nuts, ISA 2 (Secretariat, Switzerland)—The discussions of this committee centered principally around the problem of screw thread tolerances and gaging methods. Other subjects discussed included spring washers and wood screws.

Pipe Lines, ISA 5 (Secretariat: Switzerland)—Among the subjects discussed were the rolling of seamless steel pipe, steel pipe for gas and water lines, and pipe and flanges for normal pressures up to 100 atmospheres and 400 C; recommendations for the application of standards for pipe and flanges; identification colors for pipe lines; light flanges; cast-iron pipe and fittings.

The committee on Fittings discussed malleable iron fittings and recommended the adoption of the pipe threads as now adopted by the British. This differs from the former British standard in that the axis of profile of the pipe thread is at right angles to the axis of the pipe and not, as before, at right angles to the taper surface. This change was recommended particularly by the ISA committee because it means a closer approach to American practice.

Drawings, ISA 10 (Secretariat: Germany)—Arrangement of views and cross sections were discussed at this meeting.

Standard Diameters, ISA 19 (Secretariat: France)—An ISA recommendation for standard diameters and linear nominal dimensions from 1 to 500 mm based on the French standard was proposed by this committee. The step-up of the values recommended is based on the standard Preferred Numbers.

Proposals for the values below 1 mm and above 500 mm will be considered.

Terminology, ISA 37 (Secretariat: Germany)—The work of this committee is of a general nature, and has been divided into three main groups, as follows:

(*a*). Collection of general data for the development of ISA dictionaries on different subjects;
(*b*). Development of these sectional ISA dictionaries; and
(*c*). Adoption of international designations in the technical field.

In regard to the first group (*a*), the committee found that the work requires two classes of ex-

perts: first, those conversant with the particular technical field and the experts who should furnish the factual data for the dictionary; and second, the experts of committee ISA 37 who will have to formulate the dictionary.

Several subjects were discussed in connection with the formulation of a dictionary of terms: Saws, acoustics, chemical processes (particularly extraction and distillation), combustion phenomena in engines, and petroleum products.

These dictionaries will be developed in cooperation with the respective ISA technical committees handling the subject in question. For example, the dictionary on Petroleum Products will be developed in coordination with the work of ISA 28 and the dictionary on combustion phenomena in engines will be of interest to ISA committees on Aeronautics, Automobiles, and Petroleum Products.

ISA Council—France and Germany will resign from the Council at the end of this year, according to the plan of rotation of membership. Holland and Switzerland have been recommended to take their places. If these two countries accept membership, the ISA Council for 1939 will consist of representatives from Belgium, Finland, Holland, Italy, Switzerland, and the United States.

Election of a new president is also necessary, since the term of the present president, Mr. Fredriksson, Sweden, expires with 1938.

The Council decided to accept the invitation of the national standardization organization in Finland to hold the next series of ISA meetings at Helsingfors in June, 1939.

American Medical Association Accepts Standards for Spectroscope Analysis

"Science" reports Association's action as told to MIT Conference by AMA chemist

"FOR the first time in the history of medicine, standards depending on analysis with the spectroscope, the most powerful research tool of science, have been accepted for a medical product by the American Medical Association.

"This was reported to the session of the Massachusetts Institute of Technology Spectroscopy Conference by Dr. Henry R. Kreider, of the chemical laboratory of the American Medical Association, who related the spectroscopic requirements which riboflavin, or vitamin B_2, must meet to gain approval of the council on pharmacy and chemistry of the association.

"Heretofore, the standards for medical products have been determined largely by chemical and physical methods, but the spectroscope provides an 'excellent means of standardization' and it will probably find wider and wider use with passing time. Dr. Kreider stressed the ability of the powerful eye of the spectroscope to detect extremely small but nevertheless therapeutically significant amounts of metals in medicinal compounds, whether they are present as impurities or as physiologically active ingredients. In one case he described, a salve claimed to contain mercury in organic combination baffled all attempts to detect the mercury chemically, but the spectroscope quickly revealed its presence, although in an amount much smaller than that claimed.

"The spectroscope has also been very useful to the laboratory in examining physical therapy equipment such as therapeutic lamps and ultraviolet ray lights, for it enables precise investigations of their emissions and easy comparison with standards. Still another example of solving puzzling problems accurately, quickly and cheaply is the use of the spectroscope in testing portions of a patient's skin for metals. In this case a small piece of tissue is removed and examined under the spectroscope.

"O. Ivan Lee and Thomas A. Wright, both of Lucius Pitkin, Inc., reported a comprehensive attempt to correlate the 2,700-odd recognized minerals into an organized table which would enable the most precise and careful analysis. The result is a simple but extensive chart of minerals, designed for daily use by the spectroscopist and mineralogist, a distinct contribution to the art of determinative mineralogy. It is the first set of tables of this nature since 1925."—*Science, July 29.*

A.S.T.M. Paper Describes Problems In Developing Wool Standards

Problems encountered in developing standard specifications and test procedures for wool are described by G. E. Hopkins, technical director of the Bigelow-Sanford Carpet Company, Inc., in a paper presented at the Forty-First Annual Meeting of the American Society for Testing Materials. The paper is published in full in the *A.S.T.M. Bulletin*, August.

"Standards are primarily concerned with defining the material involved and setting up uniform procedures to measure its quantity and quality," says Mr. Hopkins in his synopsis of his address. "Wool, a natural product, shows wide variations in important characteristics and being closely associated with traditional and artistic uses, it is difficult to adapt scientific criteria to the established customs of describing quality, or even to its definition. Evaluation of wool products is considerably simpler than evaluation of wool fiber because more definite utility criteria have been acknowledged. Fairly complete standards are already set up on finished products and to some extent on yarns. Work on wool fiber shows promise. The determination of shrink has been clarified but is not yet standardized. Progress has been made on the classification of fine wools by actual measurement of fiber diameter and tests to show chemical deterioration of wool have been developed."

The article explains how the nature of wool itself raises problems in preparing standard specifications and tests, tells what has already been accomplished, and what is needed in the future.

Copies of the *A.S.T.M. Bulletin* for August are available from the A.S.T.M., 260 S. Broad Street, Philadelphia, at 25 cents each.

What to Consider in Standards For Textile Materials

"There are three fundamental points to be covered in the development of standards and test methods.

"First, the material must be defined; that is, limitations must be set up within which should fall all of the variations allowable without going beyond the class or type of material being standardized.

"Second, means must be provided for determining the quantity or how much of the material is present in a given lot. Very few commercial materials are consistently handled in a pure state. They are commonly handled, bought, sold, and processed, intimately associated in physical and in chemical combination with a variety of foreign materials. Hydroscopic materials contain moisture. Textile materials usually contain various types of oils. Manufactured textiles may contain combinations of fibers. Raw materials in the textile trade contain dust and other impurities associated with their natural occurrence.

"These closely allied impurities or supplementary substances are present in varying amounts. Some of them are harmful and interfere with the desired characteristics of the principal material, either by dilution or actual change in properties. Some of these substances are necessary to the maintenance of the best quality characteristics, and usually in such cases the optimum values are obtained when the supplementary materials are present in certain specified amounts. Because of the influence of these supplementary substances on weight, volume, and physical and chemical characteristics, it is practically a necessity that standard test methods be set up in such a way that the actual quantity of the principal substance can be determined, or as an alternative, so that the total quantity of primary material and ideal percentages of secondary substances may be determined.

"The third point to be covered is the determination of the quality of the material, or 'how good is the material.' We must establish how closely a given lot of the material compares with the average for the material, the best possible quality, or other points of reference."
—G. E. Hopkins, from an article "Progress in Wool Standardization," A.S.T.M. Bulletin, August, 1938.

New British Standards Published and Available

New and revised standards have recently been received from the British Standards Institution and may be either purchased or borrowed from the ASA office. Members are asked to mention the serial number when ordering. Standards which are available are:

No.	*New Standards*
795-1938	Ampoules
804-1938	Method for the Crucible Swelling Test for Coal
806-1938	Ferrous Pipes and Piping Installations for and in Connection with Land Boilers
807-1938	Shanks of Electrodes for Spot Welding Machines
	Revised Standards
78-1938	Cast Iron Pipes (Vertically Cast) for Water, Gas and Sewage and Special Castings for Use Therewith (Superseding B.S.78-1917)
96-1938	Carbon Brushes (Parallel-Sided) for Use on Commutator and Slip-Ring Machines (Superseding B.S.96-1922)
283-1938	Prussian Blue for Paints (Superseding B.S.283-1927)
303-1938	Green Pigments for Paints (Including the Undermentioned Two British Standards): *Revised Standards* No. 303-1938 for Brunswick or Chrome Greens (Pure and Reduced) No. 318-1938 for Green Oxide of Chromium (These supersede B.S.303-1927 and B.S. 318-1928)
314-1938	Ultramarine Blue for Paints (Superseding B.S.314-1927)
320-1938	Vermilion and Red Pigment for Paints (Including the Undermentioned Two British Standards): *Revised Standards* No. 320-1938 for Vermilion No. 333-1938 for Red Pigment (Red Lakes, Toner or Pigment Dye Stuff) (These supersede B.S. Nos. 320, 333-1928)
454-1938	Lead-Acid Train-Lighting Accumulators (Plante and Faure Type) (Superseding B.S.454-1932)

Commercial Standard for Walnut Veneers Gives Specifications and Grading Rules

Minimum specifications and grading rules for plain and semi-figured walnut veneers up to 1/24 inch in thickness, agreed upon by manufacturers and users of walnut veneers, are given in Commercial Standard CS64-37 on Walnut Veneers, just released by the National Bureau of Standards. The veneers included are classified as sliced, half-round, rotary, and quarters.

The standard is expected to facilitate purchasing and to contribute to higher standards of manufacture and greater uniformity of product. It is also expected to provide a basis for grade certification similar to that followed in the grading of numerous species of lumber.

Workmanship, heartwood requirements, marking, packing and grading tolerances, are covered by general requirements. Detailed requirements are fixed for three grades in each class. The grade of any particular lot of veneer is dependent on the quantity of material in the flitch, the number and size of the clear cuttings it will yield, and the kind and number of blemishes present. The method of sampling is also included in the standard.

Distinctly figured walnut veneer is not graded in accordance with the standard but is certified as to measurement, thickness, proper sampling, and manufacture. This is because of the aesthetic and decorative values determined largely between buyer and seller from samples. This type of veneer is described as figured wood and is so stamped.

The standard includes a tabulation of the grading requirements and a glossary of terms, as well as a list of companies which have accepted the standard.

Copies of Commercial Standard CS64-37 may be obtained from the Government Printing Office, Washington, D. C., at five cents each.

American Standards Association Plans Annual Meeting

The Annual Meeting of the American Standards Association will take place this year on Wednesday November 30, at the Hotel Astor, New York. Luncheon at one o'clock will be followed by election of officers for 1939 and brief reports from the President and the Chairman of the Standards Council. There will also be a guest speaker on some phase of standardization and its application in industry. The luncheon will be followed by a meeting of the Board of Directors at 3:30, and will be preceded by a meeting of the Standards Council in the morning.

Many of the activities of the American Standards Association are necessarily concerned with technical problems, and this annual meeting is the one occasion of the year when engineers and executives are brought together to consider the broader managerial and public relations aspects of ASA work. It is hoped that as many company members as possible will make arrangements to be in New York the day of the meeting.

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